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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE: THE AWARD FEE INCENTIVE - MANAGEMENT CONSIDERATIONS REGARDING ITS APPLICATION TO RESEARCH AND DEVELOPMENT CONTRACTS

STUDY PROJECT GOALS:

To increase my knowledge of the award fee incentive in order to:

- 1) better understand its potential as a management tool
- 2) be able to determine under what conditions its use is appropriate
- 3) be aware of the planning and implementation considerations involved, as well as potential pitfalls associated with its use.

STUDY REPORT ABSTRACT:

The overall purpose of this study project was to gain an understanding, from a management viewpoint, of the rationale for, and management considerations of, applying the award fee incentive to R&D contracts. The purpose of the study report is to provide information that may be helpful to those with little or no prior knowledge of award fee incentive provisions. Study methods and data sources included the survey of literature on contractor motivation, principles of program management, and the award fee concept to include DSMC library sources, AFIT student research, and DOD publications and correspondence.

SUMMARY AND CONCLUSIONS: The award fee incentive provides a uniquely flexible management tool for obtaining improved contractor performance in areas not subject to objective performance measurement. It appears ideally suited for application to the technologically complex and dynamic weapons R&D programs. However, use of award fee incentives invoke the need for increased personnel resources to monitor and evaluate the contractor's performance. Moreover, significant demands are placed on the knowledge and skill of the monitors and evaluators, necessitating use of carefully selected people in those roles. Numerous pitfalls unique to use of award fee exist. To avoid them extensive planning and circumspection should occur before initiation of a contract with award fee incentives.

SUBJECT DESCRIPTORS: Award Fee, Contract Incentives, Incentive Contracting.

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Jerry V. Brown, Major, USAF	PMC 76-2	November 1976

DEFENSE SYSTEMS MANAGEMENT COLLEGE



PROGRAM MANAGEMENT COURSE INDIVIDUAL STUDY PROGRAM

THE AWARD FEE INCENTIVE:
MANAGEMENT CONSIDERATIONS REGARDING
ITS APPLICATION TO RESEARCH AND DEVELOPMENT
CONTRACTS

STUDY PROJECT REPORT
PMC 76-2

Jerry V. Brown
Major USAF

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THE AWARD FEE INCENTIVE:
MANAGEMENT CONSIDERATIONS REGARDING ITS
APPLICATION TO RESEARCH AND DEVELOPMENT CONTRACTS

Study Project Report

Individual Study Program

Defense Systems Management College

Program Management Course

Class 76-2

by

Jerry V. Brown
Major USAF

November 1976

Study Project Advisor
Joseph L. Hood, Phd

This study project report represents the views, conclusions and recommendations of the author and does not necessarily reflect the official opinion of the Defense Systems Management College or the Department of Defense.

EXECUTIVE SUMMARY

The Award Fee incentive approach to contracting was developed by the DOD and NASA to provide the means of incentivizing areas not subject to objective measurement of performance. It has evolved into a unique method offering a combination of flexibility and potential contractor motivation not present in other types of incentive arrangements. As a consequence it is perceived to be an excellent management tool for application to the technologically complex and highly dynamic weapons systems acquisition Research and Development (R&D) programs.

The Award Fee incentive is based on recognizing and directing attention to the behavioral aspects of an organization as opposed to methods based on profit orientation. It is structured in such a manner as to foster improved interaction of the buyer and seller organizations, thereby enhancing communications and providing a "real time" management control mechanism.

Although many studies have verified the effectiveness of the Award Fee in obtaining improved contractor performance, a theory to fully support such an incentive arrangement has been only partially developed. To the extent it has been developed it is seen to be a highly complex interweave of individual and organizational motivational theory and management theory.

Given an understanding of the benefits that can potentially accrue to the use of award fee incentives one may too quickly assume that it represents a panacea for R&D contracts. Such is not the case. Use of the award fee invokes management considerations unique to this approach.

The purpose of this paper is to provide information that may be helpful to those with little or no prior knowledge of award fee incentive

provisions. The focus of the discussion is as follows:

HISTORICAL EVOLUTION - Establishes the motive for, and genesis of, the award fee incentive. Briefly traces the history of its development.

RATIONALE FOR THE AWARD FEE INCENTIVE - Describes the purpose of the award fee, the general procedure for evaluating contractor performance and awarding of fee, and the management flexibility that it provides.

INFLUENCES ON THE CONTRACTOR - Discusses the contractual and extra-contractual influences acting on the contractor and offers evidence relative to the ability of award fee incentives to improve contractor performance.

MANAGEMENT CONSIDERATIONS - Discusses a few general matters concerning use of award fee within Air Force Systems Command. Points out a few key management considerations associated with its use.

SUMMARY AND CONCLUSIONS - Provides a succinct summary of the entire paper.

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SECTION I

INTRODUCTION AND OVERVIEW

Introduction

The dominant theme that has seemed to pervade the entire DOD establishment thus far in the 1970's has been "do more with less." Without quoting the facts and figures the record shows that doing more with less has been necessary because of the decreasing DOD budget in terms of "real dollars" or buying power while the external threat has tended to increase in potential. In response to this challenge, improved management techniques and discipline have been developed and applied extensively. Accordingly, within the systems acquisition arena, there has been a shift away from the former orientation of providing primary emphasis to maximum system performance during the R&D phases. The emphasis is now on providing what is needed while balancing life cycle cost, schedule, and performance parameters.

The program manager of today, in carrying out such responsibilities, is faced with a staggeringly complex management task. However, he does have numerous management tools at his disposal to assist him toward accomplishment of his chartered mission. This paper discusses only one of those tools - an incentive approach for improved contractor performance in the accomplishment of Research and Development programs, the Award Fee.

Overview

The purpose of this paper is to provide an insight, from a program or project manager's viewpoint, as to the rationale for, and management

considerations of, use of the award fee incentive on R&D contracts. Section II discusses the origin and evolution of the Award Fee. Section III addresses the considerations supporting the need for such a technique. Section IV defines and discusses contractual and extra-contractual influences on the contractor. Section V covers some of the key management considerations (primarily from an Air Force viewpoint) associated with use of award fee incentives. Section VI is a succinct summary of the entire paper, with conclusions.

The reader should be advised that this paper does little more than "scratch the surface" of the topic. The award fee incentive is based on a complex interweave of management and behavioral theory, an indepth discourse of which is well beyond the ability of this author to provide. What has been attempted here is to present sufficient information to make the reader, with little prior knowledge, more informed.

SECTION II

HISTORICAL EVOLUTION

Before the arrival of incentive contracting the Government was faced with only two basic contract categories when contracting with industry for R&D procurements: the Cost Plus Fixed Fee (CPFF) type and the Firm Fixed (FFP) type. Both had disadvantages. The CPFF type did not create an incentive for effective cost control and management, and the FFP contract imposed an inordinate risk on the contractor for programs lacking highly definitized specifications and employing state-of-the-art technology. To bridge the gap between these two approaches, incentive contracts were created. There were then four basic types from which to choose: CPFF, Cost-Plus-Incentive-Fee (CPIF) type, Fixed-Price-Incentive (FPI), and FFP. This added dimension to contracting allowed the adjustment of fee relative to performance through the use of prenegotiated formulas, and ostensibly served to provide an incentive for improvements in management and cost control. One attribute the incentive contracts had in common was that the incentivized parameters were subject to quantification and objective measurements [21:48].¹

Incentive contracting, to some degree, solved the CPFF - FFP dilemma, but a void still remained. There were areas that were not subject to objective measurement and hence there was no method for applying incentives in an objective fashion.

¹This notation will be used throughout the report for sources of quotations and major references. The first number is the source listed in the bibliography. The second number is the page in the reference.

Other developments were in process, however, that would eventually fill the contracting void. During the early 1960's, Department of Defense officials and NASA officials were thinking independently about award fee contracts. Concurrently and independently Professor Frederic M. Scherer of Harvard University was considering the desirability of an award fee based on an after-the-fact evaluation incentive system. He proposed such an approach in a report, during 1961, of his studies for the Harvard University Weapons Acquisition Research Project [24:327]. However, it appears that the interest and impetus of such highly placed people as Assistant Secretary of the Air Force Robert Charles, Assistant Secretary of Defense Thomas D. Morris, Assistant Secretary of the Navy Barry Shillito, and Harold Finger, NASA's Associate Administrator for Organization and Management, are what led to the generation of the first Cost-Plus-Award-Fee (CPAF) contracts [22:28].

Both NASA and the Navy issued contracts with award fee provisions during 1962. The first such contract was issued by the Navy in July 1962 for operations logistic support at Kwajalein Island (it was not a CPAF contract however). The Navy's first CPAF contract was not issued until March 1964. It covered operation and maintenance of instrumentation systems and test range facilities [18:5-6].

The first award of a NASA CPAF contract occurred on 1 October 1962. This contract was identified as SNP-1 and it provided for the research and development of a nuclear powered rocket engine (NERVA). A second NASA CPAF contract, issued on 1 January 1963, covered the operation, maintenance, and engineering services for the Mercury Manned Space Flight Network [18:6].

The Air Force did not award a CPAF contract until one was negotiated in 1964 by Electronic Systems Division of Air Force Systems Command. No more CPAF contracts were issued by the Air Force until late 1969, apparently because of a nonwritten policy against the use of subjective incentive provisions.*

During 1963 the Armed Services Procurement Regulation Committee approved the use of the CPAF contract by DOD on an experimental basis [18:6]. In taking this action, the ASPR committee's initial intent was that CPAF contracts would be used only for level of effort type contracts to procure services such as engineering, technical, and support [8:94]. However, between 1963 and 1966 the Navy expanded the application of CPAF contracts to include research and development, architectural design, and construction. It is worthy of note that one of the largest military construction programs of recent years was accomplished by the Navy through a CPAF contract. It was with RMK-BRJ for construction projects in Vietnam and was administered by the Naval Office in Charge of Construction, Republic of Vietnam.

NASA and the Navy have made extensive use of the CPAF type contract since its inception while the Air Force and Army have used it to a much lesser extent [18:6]. However, the recent trend in the Air Force has been toward increased use. This trend apparently was initiated by Dr. Seamans. When he became Secretary of the Air Force he imposed the use of award fee on such major programs as the B-1, F-15, and AWACS. Since that time, increased use has been evident.

*Verbal information from Major William G. Harris, Systems Procurement Division, Directorate of Procurement and Manufacturing, Headquarters Air Force Systems Command.

SECTION III
RATIONALE FOR THE AWARD FEE INCENTIVE

Purpose

The purpose in applying the award fee incentive is to obtain better performance from the contractor than could logically be expected with other contractual arrangements. It provides a means of applying incentives in contracts where performance objectives cannot be expressed in advance by definite milestones, targets or goals susceptible to actual measurement of performance [6:3-405.5].

Description of The Award Fee Process

For contracts with an award fee incentive, the buying office establishes an Award Fee Plan that defines formal evaluation periods throughout the life of the contract. For each evaluation period, fee "pools" which may be earned in part or whole by the contractor are identified, as are the criteria, techniques, and data that will be used in the evaluation of the contractor's performance. During an evaluation period, data relative to a contractor's progress and performance is collected by technical and business monitors as they interact with the contractor. These data and the monitor's evaluations are subsequently provided to an Award Review Board for further evaluation. Additionally, the contractor is invited and encouraged to submit self assessments of performance for consideration by the review board during the formal evaluation process that occurs at the end of each evaluation period. The evaluation results and recommendations are documented by the board and given to the Fee Determining Official (FDO).

Based on all inputs, and his own judgement, the FDO determines the portion of the available fee to be awarded. He then advises the contractor, in writing, of the fee decision and performance evaluation within 30 days after the end of the evaluation period. The fee decision and performance evaluation are subjective, unilateral, and not subject to the disputes clause of the contract [2:3-405.5].

From the process just described it can be seen that the nature of the award fee concept allows the government to provide formalized periodic feedback to the contractor on how he is progressing. It also provides the government with an opportunity to make periodic thorough evaluations of progress, and cause corrective action in areas under evaluation if performance is not as expected.

Flexibility for Management

The subjective after-the-fact nature of the performance evaluation and fee determination process just described indicates a unique degree of flexibility that accrues to use of award fee. Additional flexibility for contract management stems from such provisions as: (1) the government's unilateral right to change or modify areas to be considered for performance evaluation (prior to the start of an evaluation period), (2) the versatility with which the amount of the award fee can be distributed over the life of the contract, and (3) the fact that no absolute requirement exists to have set specific evaluation and fee determination periods [5:19].

Not only is the award fee provision flexible in its application, it also provides a positive motivating influence on the contractor's

performance as will be shown in Section IV. Thus, benefits are obtained by its use stemming from the fact that it provides a flexible tool for the management of certain contractual efforts.

The nature of the award fee provision is such that it may be considered more as a method of management than a contract type. Its flexibility and its potential as a motivating influence make it especially well suited for the dynamic and technologically complex research and development programs [9:1V]. As previously discussed, it provides for frequent explicit multi-level management interaction between buyer and seller organizations. It also recognizes and operates on the extra-contractual influences affecting the contractor's organization, as well as exerting a contractual influence. Section IV discusses the nature of the contractual and extra-contractual influences.

SECTION IV
INFLUENCES ON THE CONTRACTOR

Introduction

This section defines contractual and extra-contractual influences, and discusses certain aspects of each. Consideration of Contractual Influences concerns the relevance of the contract in establishing buyer-seller relationships, as well as the influence of profit potential in motivating management within the contracting organization. Definitions of management and the functions of management are inserted for clarity of discussion. Consideration of Extra-Contractual Influences discusses further the matter of buyer-seller relationships and points out factors that may influence contractor attitudes and performance as an organization. The nature of the systems acquisition market place and its influence on buyer-seller relations is described. Comments relative to the dynamic nature and typical characteristics of the R&D contractor's organization are then provided to indicate the need for flexibility in management. The discussion of organizational goals is included to indicate that a profit oriented incentive system may not in itself achieve the desired results. Finally, Improvements in Contractor Performance with Award Fee gives evidence that a positive influence to improve contractor performance does accrue to use of award fee incentives.

Contractual and Extra-Contractual Influence Defined

A contractual influence on the contractor is considered to be anything that affects the work encompassed by the contract in a manner specifically and directly traceable to the terms and provisions of that contract. Extra-contractual influences, as defined by Hunt is:

.... anything that affects the work encompassed by a given contract not specifically and directly traceable to the terms and provisions of that contract is an extra-contractual influence [5:44; 9:1].

Consideration of Contractual Influences

Contractual influences can be many, few, general, or specific. They stem from the form and character of the contract (type and clauses respectively). Procurement specialists seem to be concerned primarily with the form and character of a contract, as well they should. The manager, however, is not so constrained in his views. Indeed, there is no magical solution to the contract management problem to be derived from the form and character of the contract. Rather, it can be considered as an "instrument" for management use to obtain desired results. It helps establish the framework for the government-contractor relationship in the conduct of the contractual effort and also functions as a precontrol mechanism on the contractor's actions. Obviously the contract form must be appropriate for the purpose, and its character should be structured to allow for the dialogue and management actions that are necessary. Observations along such lines were made by Mr. John N. Malloy, Deputy Assistant Secretary of Defense in his 1968 paper "Contracting for Major Weapons Systems." He inferred that if the DOD had learned any lessons from the past, it was that the procurement approach must be tailored to the specific acquisition objectives, and consider the nature of the program. That in the past the tendency had been to fit the procurement of each new system to the approach popular at the time. And going further,

Of all the types of contracts authorized for use by the

Armed Services Procurement Regulation (ASPR), none are considered "bad" in themselves. It is the selection of an inappropriate type for a particular program that is often wrong [16:28].

The contractual influences are the terms and conditions of the contract, and they should be structured in consideration of the program. In fact, there are numerous other considerations that should also be given, as we shall see later when discussing extra-contractual influences.

In the Weapons Acquisition Research and Development business the Program Manager is concerned with producing a system that meets operational needs, and doing so in a manner that maintains balance between technical performance, cost, and schedule. To be successful he must motivate his contractors along similar lines. This brings into the picture a specific contractual motivation influence - the profit. ASPR states:

It is the policy of the Department of Defense to utilize profit to stimulate efficient contract performance. Profit generally is the basic motive of business enterprise. The government and defense contractors should be concerned with harnessing this motive to work for more effective and economical contract performance [7:3-808-1].

This policy seems to mean that the DOD will provide the contractor the potential for profit in order to motivate contractor management toward efficient and effective accomplishment of the contract effort, thereby influencing the contractor's management functions through the provisions of the contract. At this point it is necessary to digress briefly, and discuss what is meant by management and management functions.

Management and Management Functions

Management and the functions of management can be, and have been,

defined in many ways. However, simply stated, management may be defined as working with and through people to accomplish organizational objectives, or goals. The functions of management may be viewed as - planning, organizing, implementing, coordinating, and controlling. While these functions may be distinctly separated for definition and analysis purposes they are not separable in practice due to their strong interrelationships and interdependencies. For the purpose of this paper these functions are considered to be defined as follows:

Planning involves the establishment of organizational objectives and defining the means (ie., policies, programs, procedures, resources) for achieving them. It provides a framework for integrated decision making throughout the organization [11:436].

Organizing is the setting of the structure that effectively groups the tasks which must be accomplished to achieve the organization's objectives.

Implementation is the communication of the objectives to be achieved and the means by which they will be achieved, as well as the delineation of the participant's responsibilities. It also involves motivating the participants to carry out their respective responsibilities.

Coordination involves the integration of all activity necessary to accomplish the objectives. It connotes the establishment of a consolidation and unity of views and actions.

Control is the means of assuring that tasks are carried out efficiently and effectively. Active control infers the need for a method of checking actual performance against planned performance, identifying differences, and effecting necessary changes to obtain desired results [11:465-467]. The essential elements of control are:

1. A predetermined goal; plan, policy, standard, etc.
2. A means for measuring current activity.
3. A means for comparing current activity with a criterion.
4. Some means of correcting the current activity so as to achieve the desired result [17:88].

If one can accept that the foregoing describes the key functions of an organization management system, then an effective contractual motivator would have the potential for sustained positive influence over these functions. And further, if profit is the prime motivator of contractors as stated in DOD procurement policy, then the provision of profit potential on any R&D contract should adequately motivate performance. Right? In answer, it may or it may not. The amount of the profit in absolute rather than relative terms, short term or long term nature of the profit, and influences outside the contract all have a bearing on the degree of motivation provided.

Consideration of Extra-Contractual Influences

The determinants of success in R&D contract efforts do not rest solely on the provisions of the contract. But as stated earlier, the contract is used in establishing the framework for government-contractor relations and management action. Stewart Macauley of the University of Wisconsin's Law School commented at the conclusion of Non-Contractual Relations in Business that

. . . the inter-organizational relations between parties to contractual agreements are more important determinants of success than stringent, definitive relationships [23:11; 15:66-67].

And Raymond Hunt in his 1971 report "The Use of Incentives in R&D

contracting: A Critical Evaluation of Theory and Method" stated

. . . the question is considered of how best to arrange operational conditions that will result in a disciplined or "bounded" creativity. To that end it is recommended that R&D buyer-seller relations be so structured as to:

- • • provide for high levels of communication and information sharing across all interfaces, together with cultivation of trust and cooperative attitudes;
- • • assure frequent meaningful feedback to performers (to provide this effectively the buyer needs visibility over seller operations - not just results; he also should provide for the time-tracking of performance, should exercise care that feedback is clear and related to current expectations and that contracts are flexible yet plain and straightforward as to work specs, and he should promote a problem-focused not a contract-focused posture that will not discourage active management by implying that contracts are somehow self-administering);
- • • recognize the diversity and temporal variation of motivations and situations, avoiding overly specific universalistic assumptions about the nature of performers or the performance context and leave tactical problems of intra-organizational motivation to respective managements;
- • • emphasize reward-based contracts that accomplish minimal delays in reward, make reward contingent on performance, and give performance feedback that plainly connects rewards to the actions of performers, while allowing for a variety of rewards;
- • • provide accurate expression of the buyer's preferences while conveying expectations of high levels of performance [10:11].

Based on the foregoing observations, it can be seen that attention needs to be given to both the contractual and extra-contractual aspects of the government-contractor relationship.

There are many factors that influence the performance of a contractor, and that fact needs sincere and careful consideration when establishing the relationship. The following discussion will address only three such factors. They are: the nature of the weapons R&D market system; typical

characteristics of the contractor's organization; and organizational goals.

The Market System

The market system that is operating in DOD-contractor relations for weapons acquisition programs as described by Frederic M. Scherer is:

. . . attributes of weapons acquisition preclude reliance on anything like a conventional market system for the procurement of advanced weapons, evoking instead what is best described as a non-market, quasi-administrative buyer-seller relationship. In this non-market environment the automatic guides and restraints provided by the markets "invisible hand" are absent. To replace them the government must deliberately structure its relations with contractors in such a way as to assure successful weapons program execution [24:2].

And further, he pointed out that given this market system the government has two main avenues for structuring the relationship. One is direct participation and control, and the other is through an incentive approach [24:2]. The reader will recognize that taken to the extremes, the two approaches would form the boundaries of a relationship spectrum. And that within the spectrum could exist many possible approaches with varying degrees of controls and incentives. Considering the DOD policy regarding what constitutes an incentive we can see that these boundaries relate to two basic contract types: One a "mechanical" variety epitomized by the Firm Fixed Price Contract, and the other an "administrative" type epitomized by the Cost Plus Fixed Fee contract [10:iv]. The addition of incentive fee provisions to fixed price and cost type contracts move them in slightly from the outer bounds, but they remain "mechanical" in their nature. The use of the award fee provision with one of the basic types offers a universal alternative, and fills a gap between the automatic and fully administrative types of contracts.

Organizational Characteristics

Typically, the nature of an organization is characterized by the complexity of the technology it employs. Weapons research and development programs usually involve complex technology. Fremont E. Kast and James E. Rosenzweig [11] in discussing such organizations pointed out that most of the work is "knowledge work" and involves highly specialized personnel (professionals). That decisions are more by committee than individual decree, and the influence an individual has on decisions is based more on a perception of his degree of expertise than on his position in the hierarchy. That within the organization there is a general tendency to focus on the technological aspects of programs. Management procedures are usually based on management by objectives. The program environment is dynamic (as the program evolves through the interative systems engineering process, many planned and unplanned changes occur from both external and internal sources) and program change traffic is normally high [11:180-200].

The complex and dynamic nature of the P&D intensive organization's activity is such that there is a great need for specialization and tight coordination. Yet these two needs are normally antagonistic since one is usually achieved at the expense of the other. Within such an organization the achievement of effective integration of all participants is necessary to bridge departmental boundaries and conflicts and obtain a coordinated effort leading to program success [12:49]. For weapons R&D programs, this theme can, and should, be expanded to include the relationships between all interfacing organizations.

But what roles do the various levels of management play in such an organization? The discussion to this point could lead one to infer that

the organization is directed from the technical levels (and it may be, but that conclusion is not intended). Kast and Rosenzweig talk of managerial systems that span the entire organization by directing the technology, organizing people and other resources, and by relating the organization to its environment. The managerial system is described as a composite of . . . "strategic, coordinative, and operating subsystems/levels" with the role of the strategic level being to relate to the environment and develop strategy. Coordinative managers serve as a bridge between the strategic manager and the operating management level where the work is accomplished [11:120]. But in order for the top level manager (strategic level) to be effective in relating to the environment (i.e., interaction of top management between organizations) he must be influential within his own organization [13:7]. Since top management is perceived as having control over the dispensing of rewards, and the imposition of penalties, he clearly is influential within his own organization. Managers at levels below the top manager may have varying degrees of influence within the organization, depending upon their own expertise, the manner in which they relate to their subordinates, the authority vested in them by top management, and the degree of autonomy they enjoy.

Organizational Goals

As mentioned earlier, the management process is working with and through people to accomplish organizational objectives (or subsets of objectives, which are goals). Working with and through people gives rise to the need for motivation of the participants toward common goals if the goals are to be efficiently accomplished. Further, organizations-

corporations, companies - have goals related to the purposes and desired conditions they seek as an entity. Typically, the goal set of an organization is complex, consisting of externally oriented goals and internally oriented goals, and is determined by many factors which include the environment and the value systems of the individual participants. As a consequence, goals of viable organizations are continually changing in accordance with the political process of bargaining among the various interest groups, as well as making modifications to adapt to external or environmental influences [11:154-163].

Despite the complex nature of "what makes the contractor's organization tick" it seems that the common perception is that the prime motivation is profit. As pointed out earlier, it is the stated policy of the DOD to use profit to stimulate efficient contract performance. While I am not taking issue with that policy, the consideration of other views is helpful. Chester I. Barnard, one of the early management pioneers, took issue with the profit motive when he stated during the 1930's:

... I submit that to a substantial and significant degree, it is not true that economic motives do or can dominate industrial relations; and that is especially true of the profit motive! [4:16].

Scherer, in discussing his many findings regarding the economic incentives on performance of weapons systems contractors pointed out that contractors were more concerned with securing future business than with realizing short term profits. Consequently, they emphasized quality and timely delivery to maintain their firm's reputation and prestige, and indicated a willingness to sacrifice short term profits in the process [24:158-163]. More recently, the Logistics Management Institute, in a

report to OASD (I&L) during November 1973, indicated a need for change in weapons acquisition policy; accordingly they recommended elements of a new policy that included

Recognition that short run profit maximization is not the major motivating influence over contractors -- sales are a more important objective [14:iv].

They also pointed out

Although management may attempt to obtain enough profit to provide for a reasonable and gradually increasing dividend, it is free to pursue other objectives than concentrating on profit maximization. These other objectives may be sales growth, the growth of management teams, the pursuit of managerial emoluments, or the minimization of risk [14:20].

Mr. Donald Clayton Barker, in reporting results of his DSMS individual study project in 1974, provided a list of organizational goals that he found consistently outrank profit maximization. The list included: survival, future potential, image, efficiency, meeting competition, producing quality goods, growth, control, developing new capabilities, and reducing future uncertainties. Additionally, he noted that contractors would perform the best they could independent of contract incentives; that short term incentives were virtually meaningless to contractors; and that survival was a basic goal of Aerospace companies [3:26]. Based on the comments cited, it would appear that such matters as perpetuation of the organization, enhancement of organizational prestige, control of destiny, and other goals are more important than profit maximization. However, a reasonable profit must be obtained from the organization's operations to allow the pursuit of such goals.

Improvements in Contractor Performance With Award Fee

It was stated earlier that the award fee provision provides a flexible tool for management. The source of its flexibility was described, as well as its capacity as a management tool in fostering explicit multi-level management interaction between the government and the contractor. Although it was not pointed out earlier, the designation of the fee determining official is by and large based upon establishing the FDO at a level that will facilitate communication with the level of company management at which the award fee is directed (and also to give the contractor confidence in the objectivity of the fee determination) [2:3-405-5]. It was also pointed out that the award fee is determined "after-the-fact" based on an evaluation of actual performance. Other contract types are automatic with regard to fees that are earned.

The award fee provision as a method of management represents a change in orientation from the mechanistic incentivization methods based on the perception of profit maximization goals to one of recognizing and directing attention to behavioral objectives of an organization. It is behavior oriented [23:22]. Captains Jack Runkle and Gerald Schmidt, in their AFIT thesis AN ANALYSIS OF GOVERNMENT/CONTRACTOR INTERACTION AS A MOTIVATOR OF CONTRACTOR PERFORMANCE performed an extensive analysis of Cost Plus Award Fee contracts issued by NASA. Their study was based on the following proposition:

Contractor performance is: (1) influenced by the organizational position of the officials (government and contractor) responsible for performance or evaluation of and reward/penalty for performance, and (2) affected by the frequency with which the influential positions formally interact [23:4].

Based on statistical correlations from a large sample of CPAF contract data they concluded that interaction between influential management levels of the contractor and government organizations did result in improved contractor performance. Further, they found that increasing the frequency with which the top level managers interacted resulted in additional improvements in contractor's performance [23:61-62]. An additional finding was that contractor's performance ratings tended to improve during the life of the contract, leading to the conclusion that organizational learning occurred. This organizational learning was considered to be a positive influence on contractor performance [23:53].

Another AFIT thesis [5] addressed the question concerning the influence of the size of the award fee on contractor performance. Conclusions were that there was no statistical correlation between the contractor's performance and the amount of the award fee. Yet performance did improve steadily throughout the life of the contracts. Therefore, improvements were caused by some influence other than profit [5:94].

The studies just discussed, and others conducted by NASA, lend credence to the statement that the award fee provision provides a useful contract management tool. However, a tool, no matter how good, placed in unskilled hands can have disastrous results. Additionally, there is an old adage of "the right tool for the job" to consider. Award fee contracting is not a panacea for R&D programs. The next section will discuss some of the considerations associated with its application.

SECTION V

MANAGEMENT CONSIDERATIONS

General

Significant latitude is allowed by ASPR, and the Air Force and Air Force Systems Command (AFSC) Supplements, for structuring contracts with award fee incentives. Various combinations of basic contract type, incentive fee provisions, and award fee are allowed. As an example, CPIF or FPI contracts may have an award fee feature layered over the other incentives [1:2]. Such contracts would be identified as CPIF/AF and FPI/AF. On the other hand CPAF contracts may have incentive arrangements applied that would result in a CPAF/IF contract, etc.

Use of the award fee in any of the possible combinations results in the imposition of an evaluation process of the general nature described in Section III. Within the Air Force, generally, there are two distinct levels for this process. The higher level is used for major programs and involves an Award Review Board chaired by the Secretary or an Assistant Secretary of the Air Force, who also acts as the Fee Determining official. At the lower level, evaluation is made by a local Award Review Board. When the Secretary/Assistant Secretary is the Chairman of the Award Review Board, the specific operating instructions and procedures are developed in coordination with the Air Staff. For the lower level cases the FDO is designated by the field commander, or his Director of Procurement, and the operating instructions and award fee plans are developed locally. In this case the award fee plan must be approved by HQ AFSC when the award fee pool is in excess of \$500,000 [2:3-405.5]. Below this threshold local guidelines for

approval apply.

Planning Considerations

The decision to use the award fee includes an evaluation of the areas of concern for the acquisition and what benefits may be obtained through award fee motivation. The potential gains are weighed against the associated administrative cost and complexity to determine if the payoff warrants its application. In determining the potential gains and payoffs, consideration is given to other factors that may influence the contractor. Examples are potential for follow on business, whether there is a strong competitive environment for follow on awards, the existence of conflicting priorities within the company, financial and business status of the company, etc. These and other extra-contractual influences have a bearing on the perceived need for incentives and the type of incentive deemed most appropriate for the particular acquisition.

Once the decision to use award fee has been made, careful advance planning is accomplished before initiation of the contract. Even the most simple CPAF contract requires carefully conceived and meticulously elaborated planning [18:116]. Since the fee awards are based on subjective evaluations, it is necessary that the criteria, evaluation periods and award amounts, and the techniques of evaluation be fully understood by both the government and contractor personnel before contract performance begins. Careful formulation of the criteria is accomplished to assure that it is relevant, and is so perceived by the contractor.

To be effective, subjective evaluations should be based

on relevant dimensions of work behavior which has been identified, understood, and agreed to by all parties [10:76].

An additional consideration in structuring the evaluation criteria is the focus on results rather than methods. Many of the criteria used by NASA in their earlier CPAF contracts required assessment of methods rather than results. This stemmed from an attempt to standardize criteria. As a consequence, administrative effort was increased during the fee determination process in order to determine the basis for the monitor's judgement [19:3-4].

Planning for the evaluation and fee determination process includes provisions to safeguard against arbitrary or capricious evaluations. This is accomplished by layering the process. Each layer, however, adds to the administrative cost associated with award fee. In its simplest form, the Award Review Board evaluates the contractor's performance against the criteria and presents its findings to the Fee Determining Official for final consideration. More complex procurements may require the establishment of business and performance monitors who input to a consolidating business monitor and performance monitor. The consolidated report of these monitors then flows to an Award Review Board and then to a Fee Determining Official [1:7].

The last planning item to be considered is the relationship of the Award Fee Plan to the contract. Experience indicates that it is preferable to disassociate the two to the maximum extent possible in order to maintain flexibility. By maximum separation, the government can unilaterally revise the Award Fee Plan without an attendant need to amend the contract [1:8].

Implementation Considerations

To provide a positive influence on the contractor the award fee process is supported in practice by a steady flow of factual information and by timely and relevant evaluations. The contract structure should provide for vertical and lateral communication at every management level [18:116].

Timely evaluations and communications concerning performance progress are essential to obtaining the motivation desired. The intensity of the motivation can be increased and corrective action can be directed more effectively when the periodic evaluations cover a recent short term effort [19:4]. Therefore, if the evaluation periods for award fee determinations and payment extend over several or many months, interim evaluations may be provided and discussed with the contractor. Studies have shown that the frequency of the evaluations and communication of interim ratings are more important as a motivator to the contractor than the formal fee award.

In carrying out the evaluation process care should be exercised to maintain organizational and functional identity. The use of specific functional criteria will assist in the identification of the sources of problems and accomplishments. Benefits of the formal evaluation reports back to the contractor may be diminished if the identity of the causal factors are obscured [19:3].

When using the award fee, the buying office endeavors to obtain the positive benefits of motivation while avoiding the negative aspect of induced frustration. Frustration produced behavior may occur if the incentive goals are not attainable. If this occurs the achievement motive

may not be maintained and might have a negative effect. On the other hand, behavioral studies have shown attainment of goals often reduces motivation for further increases in achievement. When this occurs, the insertion of new obstacles to overcome can result in increased motivation [18:112]. This phenomenon can be used to attain sustained motivation throughout the contract life by incrementally adjusting the award fee criteria upward. As the contractor achieves the highest level of performance prescribed in the Award Fee Plan, the plan can be revised for subsequent periods to require even better performance to earn a superior rating. Alternatively, if the contractor's level of performance in the incentivized area is such that incentives no longer seem appropriate, new areas for incentivization may be incorporated by revision of the Award Fee Plan.

Pitfalls

To this point this chapter has presented some of the management considerations relative to the use of award fee. The discussions highlighted certain actions and approaches considered by the author to be important and appropriate. But the discussions, for the most part, centered on the positive aspects, leaving the negative considerations to be inferred. Indeed, there are many potential pitfalls associated with the use of award fee, just as there are with other approaches, but advanced recognition and planning coupled with appropriate decisions will allow the pitfalls to be avoided.

Typically one becomes aware of the potential for problems through personal experience or the experience of others. For that reason, studies of actual cases prove useful. Such a study of the F-15 program revealed

four major pitfalls. It pointed out

... that a high level Fee Evaluation Board and Fee Determination Official have hampered the efficient administration of the fee provisions. Difficulty has been encountered in convening the board in a timely fashion as well as having sufficient time for the board's evaluations. [20:35].

Additional pitfalls identified were:

An additional disadvantage of the award fee contract is the administrative expense. The amount of time, men, and material required for an award fee evaluation can be considerable --. The contract manager must recognize the limitations of his organization in formulating provisions for contract performance [20:36].

Another area that causes difficulty is not funding the full amount of the maximum fee. This signals to the contractor that the amount funded is all he gets. In other words, the contractor does not visualize a program manager requesting additional funds to reward contractor performance. This is an area that can easily reduce the effectiveness of the award fee concept [20:36].

Lastly the delayed payment of an award fee after completion of the contract or a portion of the contract can adversely affect the contractor in a tight cash flow situation. The details in the post-contract management phase should continue to receive the attention of the contract manager [20:36].

SECTION VI

SUMMARY AND CONCLUSIONS

The award fee provision was created to satisfy a need that existed up until the early 1960's - the need for incentivizing contractual efforts not subject to objective measures of performance. Since its inception, the techniques for applying and using the award fee have been refined and improved, and its use has been expanded to cover billions of dollars of DOD and NASA procurements. The ever increasing use of this contractual approach probably stems from its proven utility as an effective flexible management tool for obtaining improved contractor performance. This capacity has been obtained by structuring the award fee provisions in such a way that both contractual and extra-contractual influences on the contractor are recognized and used.

Contracts with award fee involve the use of subjective after the fact evaluations to determine the amount of fee to be awarded. This characteristic makes it ideally suited for highly dynamic R&D program accomplishment in which complexity, interdependence, and uncertainty make the use of rigid, highly defined standards of performance infeasible. Other characteristics that lend added flexibility through its use are: evaluations and fee determinations are not subject to the disputes clause; the evaluation criteria and techniques are not bound by contractual agreements and hence may be unilaterally changed as the situation and needs indicate.

The award fee incentive provides the potential to positively influence contractor performance because it is based on recognizing and directing attention to the behavioral objectives of an organization.

Through the use of regular performance evaluations that are documented and provided to an influential executive within the contracting organization, an explicit control feed back loop is established at a high management level. This high level feed back from the buyer to the seller generates additional vertical communication within the organization and results in management actions to reconcile problems or reward high performance. The formal feedback mechanism, by its presence, tends to break down barriers to communication and cooperation at all levels, leading to performance improvements within contractor and government organizations.

But the flexibility and potential for improvements through this instrument do not come for free. Its use requires careful planning by astute and knowledgeable managers within the buying organization. The managers must be aware of the influences acting within and on the contractor as well as the capabilities and problems within that organization. Moreover the relatively high level of manpower resources required to manage a contract with award fee should be recognized early in the procurement planning stages and a determination made as to whether such resources can be made available. The government manager must also be constantly alert to pitfalls that could arise and take preventive steps before they are encountered. Since sufficient knowledge to anticipate pitfalls usually comes from experience or education, and since the manager may have no prior experience with award fee contracting, he should endeavor to learn as much as possible from available sources before initiation of the contract effort.

Finally, when applied by knowledgeable managers to dynamic R&D programs characterized by a significant degree of uncertainty, the award fee

provision offers a powerful management tool for obtaining improvements in contractor performance, thereby enhancing the achievement of program objectives.

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